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with the instrument can be reduced to within 1 per cent. of the amount to be measured. It will register a change in the temperature of the strips just described, not exceeding 1-50,000 part of a Fahrenheit degree. When mounted in a reflecting telescope it will record the heat from the body of a man or other animal in an adjoining field, and can do so at great distances. It will do this equally well in the night, and may be said, in a certain sense, to give the power of seeing in the dark. A more valuable proof of its efficiency is shown in a series of measurements of the heat of the moon, made under varied circumstances, to guard against error, but each made in a few seconds. All these measurements show that the almost immeasurably minute amount of heat from the moon can be certainly measured by it, even with a common refracting telescope.

CORRESPONDENCE.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. No notice is taken of anonymous communications.*]

To the Editor of SCIENCE :—

In a recent issue of "SCIENCE," "B. G. W." in a very instructive review of Marsh's monograph on the limbs of the *Sauranodon*, speaks of Darwin's hypothesis regarding *sexdigitism* in man, as reluctantly abandoned by that evolutionist, but as now standing some chances of rehabilitation owing to the discovery of *sexdigitism* as a normal feature of the extinct genus *Sauranodon*. Probably the reviewer has not met with a treatise, in in which a certain discovery of an embryonic peculiarity is detailed, and which explains not only the occurrence of *sexdigitism* but of *polydactylism* in man. As this treatise is in the hands of few comparative anatomists, I may refer to the facts here at some length. In figure 76 on page 137 of Schenk's *Lehrbuch der vergl. Embryologie der Wirbelthiere* (Vienna, 1874), is represented a section taken flatwise through the embryonic human paw. The chondrogenic elements of the mesoblast can be seen arranged in strands, indicating the metacarpophalangeal rays. A sixth ray seems very clearly present, and from some of the other rays lateral processes spring, which in the course of normal development become merged into the main ray, no doubt.

On this head, as well as some others related to the temporary presence of ancestral features in the extremities of the human embryo, I have written as follows in a series of lessons on embryology, published in the *St. Louis Clinical Record:*

At the points where the head and tail were respectively deflected from the trunk the peripheral protovertebrol masses are bulged out, as it were, and thus we have twa anterior and two posterior ill-marked eminences composed of mesoblast elements covered by the cutaneous epiblast. These are the anterior and posterior extremities. The posterior pair is the earliest to be discovered, but it is so rapidly outstripped in growth and development by the anterior extremities, that the belief has become current that the anterior are the first to appear, which is incorrect.

At the time when the hand has become demarcated from the forearm by the wrist constriction, the forearm has not yet become separated from the arm. And in like manner the foot is individualized before the leg and thigh are demarcated. The fingers are developed before the toes, and in both the hand and foot the digital segmentation is preceded by a stage in which there is a fold formed separating a main mass from the aggregate digital mass, and which persists in the adult.

If a surface section be made of an embryonic hand or foot before the digits are formed, we will find that the cell-strands which constitute the basis for each metacarpo-phalangeal ray are not five, as in the adult and developed fœtus, but are from seven to nine (at different periods) in number. This remarkable fact, discovered by my teacher, Prof. Schenk, of Vienna, points, in a manner, to the descent of the pentadactylous animals, to which man belongs, from the enaliosaurians or analogous groups of the jurassic and triassic periods of the earth's history whose fossilized remnants clearly show that they had seven or more fin rays.

To many, another and related fact will prove still more convincing in an evolutional point of view, although Schenk's observation is of more fundamental importance than the following to zoötomists:

Hensen, of Kiel, discovered that, in a *human* embryo of the seventh week, *the fingers and toes are provided with claw-like appendages like the claws of carnivora*, and that these structures are exfoliated to make way for the true nails. Further, he found plantar and palmar eminences like the *foot-pads of the dog, cat and marsupial carnivores.**

E. C. SPITZKA.

NEW YORK Jan. 7, 1881.

BOOKS RECEIVED.

WAS MAN CREATED? By HENRY A. MOTT, JR., PH. D. Griswold and Company, New York.

The time is still distant when conclusions will be drawn on the subject of the Origin of Man and many other problems treated by the author of this book. Material is accumulating faster than it can be arranged, but in all probability, a thousand years hence we shall still be without sufficient data and be diligently searching for evidence.

The scientific man is not discouraged on this account, but is well content to work on, adding daily to the great store-house of knowledge, indifferent as to whether final results are arrived at in his own day or in the future.

There is, however, another class of persons in society, who, finding that certain scientific truths, which are undeniable, conflict with revealed religion, desire a more speedy solution of these questions.

Dr. Mott in his book attempts to outline a middle course for those who are forced by scientific discovery to renounce the Biblical teachings respecting the Origin of Man, by showing from a large number of authorities, that a belief in the dual existence of man may be held upon reasonable testimony.

Had Dr. Mott called his book "An Introduction to the Study of the Origin of Man and his Future Destiny," we think it would have been an appropriate title, and would have commanded a large class of readers who are unable to obtain the larger works consulted by the author; and the seventy-five illustrations, which are well selected, would have been of considerable service to such persons in grasping the subject which is naturally complicated to those who approach it for the first time.

DR. IRVINE, of Glasgow, recently exhibited and explained before the Mining Institute of Scotland, his new safety-lamp, which is constructed to emit a loud sound when an explosive mixture of gas and air enters it, and thus consequently indicates fire damp in colleries.

*Development of the Human Ovum Embryo, and Fœtus, *St. Louis Clinical Record*, (Lecture VIII.) June, 1880.